



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/590,066

05/24/2007

Michael Mason

9706

4200

22922

7590

11/18/2009

REINHART BOERNER VAN DEUREN S.C.
ATTN: LINDA KASULKE, DOCKET COORDINATOR
1000 NORTH WATER STREET
SUITE 2100
MILWAUKEE, WI 53202

EXAMINER

NGUYEN, PHILLIP

ART UNIT

PAPER NUMBER

2828

NOTIFICATION DATE

DELIVERY MODE

11/18/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

IPAdmin@reinhartlaw.com

Office Action Summary	Application No. 10/590,066	Applicant(s) MASON ET AL.	
	Examiner PHILLIP NGUYEN	Art Unit 2828	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6,8-10,23,26,27,31-33,35,37-39,43 and 44 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4,6,8-10,23 and 38 is/are rejected.
- 7) ☒ Claim(s) -27, 31-33, 35, 37, 39 and 43-44 is/are objected to.
- 8) ☒ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 7/13/2009 have been fully considered but they are not persuasive.

Applicant argues that Mitchell et al. reference does not teach the claimed invention. Since the claim 1 has been amended to include the flat cavity end reflectors which Mitchell fails to teach. Examiner agrees that Mitchell does not teach every limitation as claimed.

However, applicant further argues that Angeley reference does not teach the claimed invention because Angeley reference teaches flat-curved rather than flat-flat mirrors. Examiner disagrees with this argument because Examiner cited the Fig. 1 which includes both flat cavity mirrors 18 and 16. Although Figs. 2 and 3 show the flat-curved cavity mirrors but these were not used as references to reject the claims. Angeley clearly discloses that the cavity is symmetric one (col. 3, lines 15-31) and therefore it would disclose the concept of maximizing beam quality in a symmetric cavity.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2828

Claims 1-2 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1 and 2 recite "wherein the solid state laser gain medium is operable" which is indefinite because the claims fail further limit the claimed inventions. Being operable does not limit the laser gain medium to any particular type that structurally different from the prior art.

Claim Rejections - 35 USC § 102

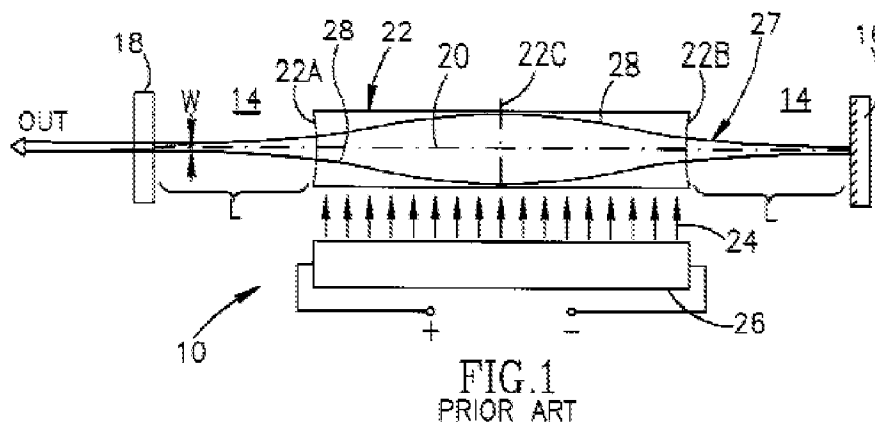
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-4, 9, 10, 23 and 38 are rejected under 35 U.S.C. 102(b) as being anticipated by Angeley (US 6282223).

Angeley discloses the claimed invention as follows:



With respect to claims 1 and 38, Angeley discloses in Fig. 1 a solid state laser gain medium 22 having first and second ends 22A and 22B along a laser optical axis 20 in which each end is profiled concave to provide a level of thermal lens compensation at a desired operating pump power such that the beam has a quality is maximized at the desired operating pump power where the solid state laser gain medium is operable in a laser oscillator cavity that is optically symmetrical and includes flat cavity end reflector (col. 3, lines 15-61).

With respect to claim 2, it is inherent that the gain medium is "operable" in a laser oscillator cavity arranged to incorporate a Q-switch or further gain modules.

With respect to claim 3, Angeley teaches Er:YAG is a material of the solid state laser gain medium but also discloses Nd:YAG could be used (col. 7, lines 10-19).

With respect to claims 4, 9, and 23 recite intended uses of the laser medium as rejected in claim 1. The intended uses provide no patentable weight. It has been held that a recitation with respect to the manner in which a claimed apparatus is intended to be employed does not

Art Unit: 2828

differentiate the claimed apparatus from a prior art apparatus satisfying the claimed structural limitations. *Ex parte Masham*, 2 USPQ2d 1647 (1987).

With respect to claim 10, Angeley discloses that the pump source 24 is flash lamp but those skilled in the art will also recognize without further illustration that pump-light 24 may be provided by one or more diode-laser arrays. According to the Fig. 1, laser medium 22 is pumped on the side.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Angeley (US 6282223) in view of Smart (US 20020093997).

With respect to claim 6, Angeley discloses the claimed invention except for a Q-switch having a first and second acousto-optic cells and respective first and second non-parallel polarization orientations. Smart discloses a laser 10 comprising a gain medium 6 and a Q-switch 8 formed of acousto-optic modulator (paragraph 0060). It would have been obvious to one skill

Art Unit: 2828

in the art at the time the invention was made to provide a Q-switch as taught by Smart to Angeley in order to produce short pulsed output. Using one reflective end of a Q-switch as a cavity end reflector only involves routine skill in the art to make the laser structure more compact.

With respect to claim 8, although Angeley does not disclose frequency converter and a frequency selective reflector between the solid-state gain medium and the frequency converter, it would have been obvious to one skill in the art at the time the invention was made to provide a frequency converter such as nonlinear crystal to convert the output to shorter wavelength (harmonics) for other uses. A frequency selective reflector could be easily realized by any type of grating or dichroic mirror or anti-reflective coating/film. See Ishizu (US 20050276300), Liu et al. (US 20050215078), or any green laser generation apparatus.

Allowable Subject Matter

5. Claims 26-27, 31-33, 35, 37, 39 and 43-44 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

Art Unit: 2828

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Communication Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phillip Nguyen whose telephone number is 571-272-1947. The examiner can normally be reached on 9:00 AM - 6:00 PM, Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, MINSUN HARVEY, can be reached on 571-272-1835. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Art Unit: 2828

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Minsun Harvey/

Supervisory Patent Examiner, Art Unit 2828